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ABSTRACT

The use of MERLIN, a computer assisted tutorial system, was evaluated in both a supervised and an unsupervised mode in 1980. MERLIN was used only in an Open University second level course entitled "Images and Information," which dealt with modern imaging systems. The tutorials covered the first 10 of 16 study units and were taken via the Open University's Student Computing Service terminals at local study centers. A questionnaire was sent to 459 students and tutors, of whom only 62 responded, which represented 26% of the 238 students who returned the feedback section of their second compulsory course assessment. Sixteen respondents had not used the system. Results suggest that, although students perceive the usefulness of the system, the problems of access to and operation of the terminals in study centers greatly limit their use. A subsequent evaluation to remove access problems was planned for 1981 with six students using home-based computer terminals. Appendices provide the 1979-1980 figures on MERLIN usage; minutes of use by tutorial and week number for 1978 and 1980; study questionnaires; a letter to computer tutors requesting information; student comments on benefits, suggestions, and problems; and MERLIN usage figures in graph form. (Author/LMM)

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ED247889

An evaluation of tutorial CAL at the Open University; the use of MERLIN in ST291.

(This study was carried out in 1980)

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Abstract

This report describes an evaluation study of the use of a computer assisted tutorial system, MERLIN, in a supervised and unsupervised mode. The system is only used in an Open University second level course "Images and Information" (ST291), which deals with modern imaging systems. The computer tutorials cover the first ten (out of 16) units of study and are taken via the Open University's Student Computing Service terminals at local Study Centres.

The main conclusion suggests that although students perceive the usefulness of the system, the problems of access to and operation of the terminals in Study Centres have a great limiting effect on their take-up.

A subsequent evaluation is being undertaken in 1981 to remove problems of access with a small sample of six students using home-based terminals.

EVALUATION OF STUDENTS' USE OF THE MERLIN COMPUTERISED TUTORIAL PACKAGE

1. Background

MERLIN is a Computer Aided Learning (CAL) system developed specifically for use by students on the Open University course ST291: Images and Information. The system enables students to access computerised tutorials via a terminal located in their local Study Centre. It is generally viewed as one of the most sophisticated CAL packages used in the Open University, and probably in Great Britain, as an aid to adult distance learning.

The Study Centre terminals are connected to one of the three SCS computers via a telephone link. This telephone link is also used to put the students in voice contact with a human tutor on certain 'supervised nights', and it is this aspect of the system which is particularly innovative. Before attending each tutorial, students attempt to answer a set of 'profile' questions contained in a tutorial booklet. After calling up the tutorial they wish to study (there are twelve covering the first half of the course) they are asked to type in their answers to these profile questions. These answers enable the computer to draw up a profile of each student and route that student through the tutorial most appropriate to his/her ability. Each tutorial starts by establishing a question and answer dialogue which is aimed at improving the students' familiarity with the lower-level concepts,

eventually building up to the more complex concepts with which the student showed a weakness in the profile questions.

The human tutor is situated at the telephone switchboard associated with the computer and watches a VDU display which shows the progress of all the students currently using the computer tutorial program. By typing a suitable command, the display can be made to provide a detailed analysis of any student's answers and to pinpoint his or her 'weak' concepts. If, at any time, a student types the word 'HELP', or if either the MERLIN program or the tutor decides that student is doing particularly badly, then the student will be put into direct voice contact with the tutor. This uses the telephone line which until this moment has been the link between the computer and the terminal. With the help of the VDU display (which at this stage automatically concentrates on the recent tutorial history of that student) the tutor can provide personal assistance of a type which no computer program can supply. At the conclusion of the conversation the student can automatically continue with computer tutorial precisely where he or she left off.

Of the twelve tutorials available on the system, three are of a remedial nature and are supplemented with a booklet called "Ways and Rays". These tutorials are to remind students of basic optics covered in the Science Foundation Course and take them forward to the real starting point of the course. The remaining nine tutorials each cover a unit of the course. The tutorials were written by a member of SCS* with experience in the academic area, and employed specifically for the job. The tutorials are

* Student Computing Service

supervised on about 30 nights in the year (ten nights per computer location). On the remaining nights the system operates in a non-supervised mode.

2. The Evaluation

The MERLIN system has been in operation since ST291 was first presented in 1977. Although the comments which had filtered back from the students and tutors indicated that the system was well-received, no study had been done and apart from the bare SCS statistics (Appendices 1, 2 & 3) on usage figures, no information was available on its use.

With the establishment of the "CAL in Science Research Group" early in 1980, its members set out to produce reports on all the CAL packages presently in use in the Science Faculty. As a member of the Physics Discipline, it fell to me to look at ST291 CAL.

The mode I used to gain data on the students and tutors response to MERLIN was via a questionnaire. As the tutorials only cover the first half of the course, I sent out my questionnaire (Appendix 4) in a general course mailing during April 1980, and I asked for replies by 14th June, 1980. From the six computer tutors the information was requested by letter (Appendix 5) at three points through the year.

3. Results of the Evaluation

Of the 459 questionnaires that were sent out in 1980, 62 were returned. However, it may be more realistic to compare the number returned with the number of students who returned the feedback section of their second

piece of compulsory course assessment. This response rate was 238 replies, so the percentage who returned the questionnaire could be taken to be 26%. (253 students sat the final exam and although 459 students were still officially registered on the course in June when the questionnaires were sent out, many had effectively ceased following the course and did not submit assessments.) Of these 62, 16 (26%) replied that they had not used the system and of these, six specifically replied that they never intended to. The reasons for not using MERLIN at all predominantly featured access problems either in terms of distance to the terminal; access to the terminal room because of disability; booking system inadequacies or overuse by other students. Presumably such difficulties can generally have been assumed to apply to the students who did not reply to the questionnaire and they can be postulated to contribute to the SCS statistics (Appendix 1) for 1980 showing a total of only 970 runs up to the beginning of October on the twelve tutorials. This gives an average of 80.83 runs per tutorial for 238 students - each student on average theoretically does only a third of a run.*

However, the 48 students who replied that they had used MERLIN were enthusiastic about the help it gave with their study of ST291. They all enjoyed using the computerised tutorials and their comments in answer to question 15 - 'Benefits of Using MERLIN'- are given in detail in

* As a percentage of the finally registered students on the course, the number of computer runs for ST291 varies from 30% to 8.8% giving an average of 21.9% over the twelve tutorials. For the Calchem program on S101 the corresponding average is 14.9%. (Figures taken from 1979 SCS statistics as reproduced in "A Discussion Paper on Computer Assisted Learning" by Butcher and Macsich.)

Appendix 6. An overview of these benefits suggest that most students gave one or more of the following reasons for their appreciation of the system:

flexibility of time of use;
a new approach to the subject;
individual teaching;
providing a précis of the unit;
more course material - especially extra SAQs;
tutor can't get sidetracked;
immediate feedback;
makes learning fun.

I suggest, however, that these 48 students had a much lower 'discouragement threshold' than those who did not reply and perhaps had given up. Most of these 48 had experienced some difficulty when using or attempting to use the computer terminal, usually with the hardware. These practical problems (answers to questions 3 and 8 on the questionnaire) are detailed in Appendix 7. The most common problems appeared to be:

booking system failures;
heavy use by other O.U. students - mainly those of maths/computing courses;
closure of Study Centres during holidays;
unavailability of refil computer paper or ribbons;
problems with the telephone link.

By the time most of the questionnaires were returned to me, nearly all the supervised nights had taken place. The replies to question 9 on the questionnaire indicated that the majority had no preference for either supervised or unsupervised tutorials. Of those who stated a preference, 66% preferred the unsupervised mode, but of these 66% only 33% had tried the supervised mode. (Those who preferred supervised had tried both.)

The number of students who had tried the supervised mode was very small, about 9%. This figure is endorsed by the SCS statistics (Appendix 1) where the percentage of runs with conversations (i.e. supervised) varies between 0 to 11%. The criticisms of the supervised mode consisted of:

The presence of other students in the terminal room made ST291 students nervous of talking aloud;
students were afraid of wasting other students' time;
students thought the tutor may assess them.

The tutor came on the telephone line too soon before the student had time to think the problem through;
tutors couldn't isolate the student's problem;
students were shy of talking to the tutor;
students were afraid of being though stupid.

Some students merely liked to obtain the computer printout to study at home, then talk to their course tutor later on.

However, a few advantages of the supervised mode were also expressed especially with regard to the availability of the tutor. The tutor also saved students' time in sorting out a problem, especially as the O.U. paid for the call! It appears, unfortunately, that most students were put off the supervised nights without trying them. The tutors themselves are not unaware of this problem and have tried several different tactics to encourage students to make contact with them. (After the first contact, a student can by-pass the computer's suggestion that s/he talk to the tutor.) The tutors generally felt that it was very important to establish a rapport with the student on the first contact, and this determined whether the student would use the override facility on future contact to avoid talking to the tutor.

The problems discussed with the tutor were very varied in level and scope, requiring flexibility of approach and a wide grasp of the teaching material both in the tutorial packages and in the corresponding units. The tutor was often required to move efficiently between four or more sets of tutorial material and the corresponding units. The length of time students spent talking to the tutors varied greatly from a few minutes to an hour or more. Tutors suggested that the heaviest use of the supervised nights occurred at the beginning of the year when the computers were also used more by non ST291 students. This led to some ST291 students being unable to get a port on a supervised night. Other problems were reported to be the screen update being very slow (too slow in fact to make sensible use of the data), and a queue of help calls piling up because the computer was slow to connect students.

Some students do not appear to use MERLIN until the end of the year, for revision purposes. This seems to be a very effective use and one tutor reported that during her supervision of a revision session, the students concentrated five tutorials into one evening and sorted many problems out which were highlighted by the tutorial package.

4. Conclusions

Although the response rate to my questionnaire was not very high and the SCS statistics on the use of the system are very disappointing, MERLIN does have one of the highest student use of CAL in the Science Faculty. Those students who do use MERLIN are evidently enthusiastic about the system (Appendix 6). It is also successful as far as the tutors are

concerned because it is integrated into the overall tutorial arrangements and computer tutors are specifically appointed to concern themselves with the CAL component of the course.

In answering question 16 on the questionnaire, suggestions for improvements (Appendix 6), these mainly addressed themselves to improved hardware (faster terminals, VDUs for graphics, etc.) and improved access (making booking easier, and locating terminals in institutions which did not close over academic holidays). Many of the hardware problems have been resolved in 1981 as every Study Centre has been installed with a new, faster terminal which will produce printout at 30 rather than ten characters per second. The access problems are still present and are unlikely to be resolved in the next couple of years. However, as new developments in computing rapidly reduce the cost of microcomputers and associated hardware, the new decade may bring CAL facilities very much nearer to the student. The students are not unaware of these developments as these two comments taken from my questionnaire highlight:

> "When computer access becomes more common place, tutorials of this fashion should be the O.U.s major teaching outlet. The O.U. should prepare now."

> "Since it is only available for about two hours per week, it would be helpful if it was at some future date available on a home cumputer system."

Spurred on by comments such as these, the next stage of my work involves monitoring the use of six students using MERLIN during 1981 from their homes by means of portable terminals. Here the problems of access will obviously be eliminated but what other difficulties will emerge? I am afraid you will have to wait for Part II to find out!

SCS STATISTICS - MERLIN USAGE FIGURES (1978-80)

TUTORIAL	RUNS			HOURS			PERCENTAGE OF RUNS WITH CONVERSATIONS		
	1978	1979	1980	1978	1979	1980	1978	1979	1980
U	196	162	154	145	50	45	15%	16%	11%
V	128	125	130	184	64	64	9%	10%	8%
W	89	99	95	115	43	46	8%	12%	4%
A	140	138	117	153	47	42	3%	6%	6%
B	95	99	90	82	25	25	6%	2%	1%
C	96	98	84	233	55	56	8%	12%	13%
D	86	72	79	272	45	54	4%	14%	3%
E	56	54	58	98	25	24	4%	6%	4%
F	47	42	44	60	15	9	15%	3%	5%
G	48	51	37	53	13	2	4%	0%	5%
H	40	44	34	62	13	2	16%	0%	0%
I	27	40	48	13	15	25	4%	8%	10%
TOTAL	1048	1024	970	1470	410	364	8%	9%	6%

The 1979 figures are only to mid September.

The 1980 figures are up to the beginning of October.

Week Commencing	TUTORIALS U	V	W	A	B	C	D	E	F	G	H	I	Totals
5 Feb	827	145	0	0	0	0	0	0	0	0	0	0	972
12 Feb	2257	1194	123	61	0	0	0	0	0	0	0	0	3635
19 Feb	1559	2022	1197	1395	0	0	0	0	0	0	0	0	6173
26 Feb	1622	3089	1555	1240	73	0	0	0	0	0	0	0	7579
4 March	761	1595	628	1591	921	0	0	0	0	0	0	0	5496
11 March	820	1556	2054	1982	1440	0	0	0	0	0	0	0	7852
18 March	365	347	271	663	293	150	0	0	0	0	0	0	2089
25 March	0	147	164	126	183	265	0	0	0	0	0	0	885
1 April	191	290	349	531	431	956	0	0	0	0	0	0	2748
8 April	71	112	111	386	592	2229	2260	0	0	0	0	0	5761
15 April	171	143	238	730	351	4593	3919	0	0	0	0	0	10145
22 April	25	152	73	36	24	2346	3140	804	0	0	0	0	6600
29 April	30	144	47	39	91	1003	2014	1061	39	0	0	0	4468
6 May	0	0	0	152	285	507	1341	916	338	0	0	0	3539
13 May	0	0	0	75	156	301	610	1448	1139	0	0	0	3729
20 May	0	0	0	59	568	1421	1319	1285	173	0	0	0	4825
27 May	0	0	0	0	0	725	0	0	226	0	0	0	951
3 June	0	0	0	94	0	362	308	166	409	772	1010	0	3121
10 June	0	0	0	0	55	716	569	20	160	1121	1113	0	3754
17 June	0	133	85	0	0	0	0	142	211	910	1575	764	3820
Totals	8699	11069	6895	9160	4895	13996	16307	5876	3581	3202	3698	764	88142

Week Commencing	TUTORIALS U	V	W	A	B	C	D	E	F	G	H	I	Totals
2 Feb	344*	112	79	35	10	0	0	0	0	0	0	0	580
9 Feb	624	1141	487	234	133	0	0	0	0	0	0	0	2619
16 Feb	331	515	374	219	135	0	0	0	0	0	0	0	1574
23 Feb	586	719	667	428	208	53	0	0	0	0	0	0	2661
1 March	393	611	410	674	503	5	51	39	0	0	0	50	2736
8 March	147	247	304	364	270	228	129	55	4	0	0	39	1787
15 March	34	197	89	197	272	394	265	0	30	35	0	0	1513
22 March	101	127	150	156	147	418	369	0	0	0	43	0	1478
29 March	58	33	46	0	0	278	76	0	0	0	0	0	489
5 April	0	0	0	0	0	48	97	44	0	0	0	0	189
12 April	44	24	0	72	38	538	305	130	34	34	0	0	1219
19 April	0	47	54	0	0	497	507	237	61	0	0	89	1492
26 April	14	38	38	31	0	188	230	347	0	35	94	78	1093
3 May	0	0	0	0	0	325	513	152	0	0	0	87	1080
10 May	4	8	2	4	22	160	460	170	0	0	0	94	914
17 May	0	0	0	74	0	150	49	71	0	0	0	246	590
24 May 3	0	0	0	0	0	71	94	0	0	0	0	71	236
31 May	0	0	32	8	9	0	0	71	160	0	0	224	504
7 June	18	14	0	0	0	0	0	55	109	0	0	202	398
14 June	10	40	0	15	33	11	78	60	133	0	3	306	689
Totals	2708	3871	2735	2510	1498	3362	3232	1429	532	104	140	1485	23849

*M.K. computer was down in this week

[1]Easter week; [2&3]Bank Holiday weeks

ST291 Merlin Questionaire

Step Press

A study is being undertaken for the Science Faculty on the use of computerised learning systems. This questionaire aims to gather information on the ST291 MERLIN system. Your experience as a student using the system is vital to the study and I would be extremely grateful if you would answer the following questions as soon as possible on the computerised tutorials you have used so far, adding any opinions of your own. I hope the questionaire will not take up too much of your time, however it is necessary to gather feedback of this nature in order to make improvements to the system in future.

A SAE is enclosed for the return of the questionaire and I would appreciate a reply no later than 14th JUNE 1980.

E. L. Whitelegg
Course Manager, Physics Department.
April 1980.

1) List below the tutorials you have used, indicating whether they were supervised or unsupervised, and a rough indication of the length of time you spent at the terminal.

Tutorials	Supervised/Unsupervised/Both	Time Spent

2) Did you enjoy using the computerised tutorials? Yes/No*

3) If you did not find the computerised tutorials useful, please state your reasons below.

4) Did you do any academic preparation for the computerised tutorials. Yes/No*.

5) Did this consist of the profile questions alone? Yes/No*

6) If you did some preparation, approximately how long did this take?

7) Did you experience any problems with the dec-writer, telephone etc. (i.e. the hardware) when using the computerised tutorial system? Yes/No*

8) Please expand on any problems.

9) Which type of computerised tutorial do you prefer to attend?

Supervised/Unsupervised/No preference.*

10) During the supervised tutorials you participated in (if you did not attend any supervised evenings go to question 16), how many times did you initiate help from your tutor per tutorial?

11) Did the tutor ever contact you first? Yes/No*

12) Did you object to this? Yes/No*

13) If you did object, please state your reasons below.

14) If you did not contact your tutor was it for any of the following reasons. (Place a tick in the appropriate box(es).)

(i) You thought that the tutor might think that your question was stupid. (i)

(ii) You did not want to waste the tutor's time. (ii)

(iii) You dislike being taught by phone. (iii)

(iv) You felt that you might be discriminated against if the tutor saw you making mistakes. (iv)

(v) Something went wrong with the system, and you could not get through to your tutor. (v)

(vi) Other reasons, please specify.

15) List below any benefits you have obtained by using MERLIN.

16) Do you have any suggestions for ways to improve MERLIN.

17) Would you prefer one (and only one) additional face-to-face tutorial instead of all the supervised computer tutorials. Yes/No*

Thank you for completing the questionaire, please return it in the envelope provided.

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* Delete the inappropriate reply.

1969 10 1979

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THE OPEN UNIVERSITY

ELW/jms

17th March 1980

To all ST291 Computer Tutors

An evaluation of computer aided learning is presently being undertaken for the Science Faculty by myself and others from I.E.T. and S.C.S.

As a member of the Physics department, I have offered to look at the CAL aspects of the ST291 MERLIN program. I am therefore writing to you to request some information concerning the sessions which you will be supervising this year. The sort of information which would be useful to me would consist of the following:-

1. The number of students using the terminals and the number actually being supervised on each of your supervisory evenings.

2. The number of times each student typed HELP.

3. The number of HELP calls you initiated, and the students reaction to this.

4. Average amount of time you spent answering HELP calls.

5. The points in the computer tutorial at which students were having difficulties.

6. Problems either at the students' or at your end with the MERLIN system.

In addition to the above six items, any other comments from you on MERLIN would be much appreciated.

In order for me to organise this project, I would welcome the information from you at three points during the year - 1st May, 1st July and 1st November.

Thanking you in advance for your co-operation.

Yours sincerely,

Liz Whitelegg

E. L. Whitelegg

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ST291 MERLIN QUESTIONNAIRE

Benefits and Suggestions - Student Comments

No.	Benefits (answer to question 15)	Suggestions (answer to question 16)
1	1. It makes the basis of the units far clearer than the units. 2. I work shifts and consequently find it impossible most of the time to get to the face to face tutorials hence the computer tutorial is invaluable to me as I can go when I please.	NIL +
4	Good tutorial system	NIL
6	I get a lot of information from the tutorial print out.	Unless more time can be made available at terminals then Merlin should be limited and more face to face tutorials particularly on units 3, 4 and 5.
7	Reinforcement of information in units plus sometimes slightly different 'angle' of approach - both helpful.	Quieter, faster terminals.
8	1. I think it encourages greater thoroughness - to avoid being 'caught out' by the computer. 2. Contacting one's tutor by telephone is an expensive business (in my case a trunk call at my own expense). I am happy to do it this way at the OUs expense and in any case it is an extra outlet. 3. The printout is very useful. I go through it when I get home. 'Answer'* is also going to be useful.	On only one tutorial has the supervisor introduced himself through the machine (15 May - Milton Keynes - Keith Hodgkinson). Could this be made standard practice? It does give a personal touch which is reassuring. I would like it to be a two way process but I suspect others would object to their names being known to the tutor. On a number of occasions I have managed to get out of phase with the programme. On the three nights that I attended supervised tutorials I inadvertently booked the 6-7 p.m. session; a case of temporal incoherence I think, and the fault was clearly mine. But on two other occasions, owing to Brighton Polytechnic holidays, use of the terminal was not possible (15-17 April and 27-29 May) as there was no access to the building (spatial incoherence?). As a result I have slipped behind with the tutorials. Could I suggest that the academic holidays are avoided, as I am sure many terminals must be in similar institutions.
9	What has helped a lot is the fact of having further S.A.Q.'s to answer and a concise and clear answer printed if your answer is incorrect. It also deals with people individually assessing their performance, which is difficult for a face to face tutorial (except with the T.M.A.'s).	NIL

+ A NIL entry indicates the student left that question blank.
* The 'Answer' program enables students to receive a printout of the correct CMA answers.

No.	Benefits	Suggestions
11	NIL	A point. Of all courses so far attempted ST291 has proved to be the most exacting and difficult. The time I have had to spend has been very much longer than the 12-15 hours the OU recommend. The computer tutorials have helped, but added to the already heavy workload-they do push up the time spent alarmingly. I honestly think that the workload is such as to make this course worth a full credit.
13	Not to improve the program itself but to speed up the printout so that you're not waiting for the printer to finish. I (and a few other students on other courses) found the lack of speed frustrating, especially with long passages of print.	NIL
17	NIL	Delete the 'response' system. Breaks train of thought when trying to calculate or understand some concept.
18	NIL	Use faster teletypes.
19	Corrections of misunderstandings and consolidation of material in the units.	NIL
21	Condenses the essential info. of unit.	A grapics display unit at terminal would be more versatile than the text diagrams.
22	Replace long, often repeated paragraphs by a short code. Programme should print 'right' or 'wrong' to question responses rather than 'now you are... etc', 'incorrect', etc.	Replace long, often repeated paragraphs by a short code. Program should print 'right' and 'wrong' to question responses rather than 'now you are.. etc.', 'incorrect', etc.
23	1. Helped to understand course material better. 2. Rather a fun way of learning.	Improve the facilities at study centres and make sure that booking forms and computer paper are both available whenever the computers could be used by OU students.
24	Helped to bring together points made throughout the units.	Couple to VDUs for improved speed.
25	I discovered that during the majority of the tutorials I had not understood fully the unit.	Examination type of questions would help.
26	Insufficient facilities for face to face tutorials means that Merlin is an excellent alternative.	NIL
27	NIL	Use a VDU unit so that graphics can be used, a printer would still be necessary so that selected items could be taken away for further study.
28	Generally helpful when explaining certain aspects in another way.	While additional questions are helpful it is the notes of explanation which are the better parts of the Merlin tutorials.

No.	Benefits	Suggestions
30	Cleared up some obscure points in the units and in general was very beneficial. I think one Merlin is just as beneficial as one face to face tutorial - it is more individual for instance.	One cannot improve perfection.
34	NIL	Give maximum running times of prog. assuming all input answers are 'X'.
35	1. Less travelling to tutorial. 2. Tutorial available (almost) any time. Tutorial on each unit and therefore easier to take in few principles than many as at conventional tutorial. 3. 'Tutor' cannot get 'side tracked' and waste time. 4. Tutorial is on relevant points in unit.	Visual display instead of typed displa, as this present method is lengthy (time wise) although it has advantage of tutorial which can be reviewed at home afterwards.
38	Specific points developed more - understanding increased. Topics taken from different aspect.	Make supervisor available on any part a student happens to be on. Give student the option of turning down the supervisor when the computer wan.. to put him/her on.
39	Chance to attempt more exercises and obtain answers without condescension.	NIL
40	Mainly a useful way to test my knowledge and grasp of the subject. I used Merlin previously to attending a live tutorial and saved residual problems for the face to face meeting. I plan to run them again during revision in September.	An improved terminal that was not so noisy mechanically, would make it much easier thinking when interacting with with the program, I have occasionally found Merlin's answers and comments ambiguous - I have left messages on the terminal facility recording these.
41	NIL	Get rid of ALL radio broadcasts, computerised tutorials, etc. and spend money saved on improving LOCAL personal (or group) tutorial sessions.
42	Learnt to do a little bit of the vast amount I do not know about optics.	Give student the option of speaking to tutor or not. Possibly more instructive after computerised tutorial is over.
45	1. Additional course material. 2. Specific aspects covered from a different angle to that given in the units.	NIL
46	Without 'Merlin' I would have considered withdrawal from course. Material made considerably simpler.	When computer access becomes more common place, tutorials of this fashion should be the OUs major teaching outlet. The OU should prepare now.
48	Gives another angle to the course which aids understanding, e.g. more maths, different questions, etc.	Speed up printers and cut unnecessary things which are repeated, substitute say 'X' symbol for "press return unless you want to jump to a particular block or section....."
51	1. Good computer terminal experience. 2. Makes learning more enjoyable.	NIL
52	Found tutorial G a great help - a much more lucid account of coherence width and length than U7-8 Tutorials C-D a great confidence booster.	More immediate feedback on partially correct answers.

No.	Benefits	Suggestions
54	1. Ability to check understanding - no fears of poor marks/stupid questions/ask simple questions. 2. Immediate feedback - no waiting for postal response therefore quick rectification of misunderstandings. 3. Hard copy - although annoyingly slow, the printer does give a retainable hard copy. 4. Ease of access - flexible timings to use the computer when I want (within certain college constraints).	1. Improve terminals - despite cost, VDU and hard copy printers would be perfect. 2. Teaching programmes - in addition to question books, have 'teaching programmes', where the computer gives you a summary of difficult aspects/ units. 3. Ability for the student to ask computer questions.
55	It adds depth to the understanding of the units.	VDU might make it more acceptable to people like me who are frightened of the computer.
56	Good CMA practice with more rapid feedback; excellent teaching on aspects of units; fascination at complexity of programme.	NIL
57	I have no hesitation in saying that I would definitely have dropped ST291 if it wasn't for the support of Merlin.	Who ever wrote the programs has my congratulations. I think they are excellent. Might there be provision to say you want the complete program regardless of correct answers?
58	My understanding of the course has been helped greatly by the question and answer technique of Merlin.	NIL
59	Computurial, whether supervised or not, really do help one gain a better understanding of the units, hence what is expected of you during the course.	NIL
60	Useful revision.	Since it is only available for about two hours per week it would be very helpful if it was at some future date available on a home computer system.
61	NIL	Re 'Supervision'* above - I would prefer to wrestle with the computer unsupervised, make my mistakes, take them away to mull over and thereby define my problems for an 'efficient' discussion with my tutor later. We all get the 'sillies' and mental blocks at times, personal effort is sometimes more useful to understanding than external leadership, especially should a 'cross purpose' situation develop. It is only when, after effort, self-admission of not grasping, or realising, is acknowledged that help is needed.
62	One or two points became clearer to me through the programmed learning and hopefully I will be able to use the print out at revision time.	For me, personally, send me a new list of tutorials which are supervised. I wouldn't mind having the tutorial book question more closely related to the CMA questions. Otherwise I can't think of any practical way of improvement.

* refers to question 9 - student prefered unsupervised tutorials.

ST291 MERLIN QUESTIONNAIRE

Problems - student comments

answer to question 8

1. 8) Only the position of the telephone lock key. (Study Centre problem now resolved.)

2. 8) Once or twice there have been problems in establishing a link to the computer because of malfunctions in the telephone system.

answer to question 1

5. 3) Since I'm disabled my main problem was access. I did not feel that it was worth all the effort of getting into the Study Centre for the tutorials, hence my answer to 1) above.

6. 3) I found them useful when I revised them at home. During the early part of the course there was very little computer time available as the college is only open Mon-Thurs. I just had to collect them from the computer.
8) For the first tutorials I did a lot of prep but later found I got a better tutorial if I put in the wrong answers, I continued to do this for the rest.

7. 8) Sometimes difficulties in logging-on. Usually cured quickly with help of supervisor, either using different port or different computer centre.

8. 8) On the first occasion I had difficulty in getting a connection and had to request help from the computer supervisor. Subsequent problems have been in trying to use the booking system; I have not yet managed to operate this successfully and have had to do this by phone.

17. 8) Difficulty in establishing a link to the main computer.

18. 3) Far too much time waiting for printer to print out. Conditions not conductive to quick thinking causing some wasted time and incorrect inputs.
8) a. Ran out of paper and no refil available!
b. Could not log in on one occasion, had to ring adviser who quoted a different password.

19. 8) I use a private terminal with Audio Modem and find it impossible to use the Newcastle computer (spurious printout if log on is possible). But do not find any difficulty with the Milton Keynes computer.

23. 8) a. No computer paper on two occasions at Liverpool Study Centre and the staff on duty had no idea how or where to obtain it from.
b. On one occasion there were no booking forms for the tutorial and no one knew where these were kept so I couldn't book it for another tutorial.

24. 8) The computerised booking system in use at Taunton was not being used by all users, this led to some double booking.

26. 8) The writer at Menai Bridge has a fault - the paper feed does not always advance and the machine therefore over-types a line on the previous one making both unreadable.

30. 3) All I used were useful, and enjoyable to.
8) Mainly hardware - replacing ribbons, paper and difficulty with echo on occasions. Usually resolved OK in ten minutes.

38. 8) First tutorial, U, went well until dec-writer printed out actual Merlin program line. Followed by carriage failure; couldn't continue. The next two or three sessions were made difficult due to telephone difficulties, i.e. private nos., factory nightwatchmen, and no replies on computer no. - computer adviser no. - after repeated dialling gave up. Computer said an answer was wrong and then printed the same answer as correct.

40. 8) I tried to book a second terminal session using the computerised booking system, but failed after 3 attempts and simply phoned the supervisor, no other problems.

42. 3) The use of computers was OK but found it was necessary to act on commands too quickly to be able to absorb the information fed out since I am by nature slow witted and dense.
8) I am a rotten typist.

48. 3) In the main they seemed useful but inclined to give rather overpowering comments which required a great deal of time just understanding what they said. When all profile questions are correct then surely you should give more advanced tutorials to test depth of understanding.
8) Connection block usually at fault causing incomplete connection with computer, otherwise OK.

49. 8) Needed 4 attempts on one evening before I could log on. The computer seemed in trouble, later it crashed.

51. 8) Problems logging in sometimes. Finding keys on key board takes too long.

53. 8) One booked session disrupted due to a modem fault. Helpful efforts by computer operators in London failed to get me 'on-line' and therefore I had to abandon session.

55. 3) Yes, very useful.
8) Line kept dropping out.

57. 8) a. Once the terminal printed garbage whilst I was talking to the tutor. The supervisor advised turning it to local which cured it.
b. Once I was not connected with the London tutor. I was connected later (about 15 mins.) and the tutor said he'd been connected to a student not doing ST291 in Wales. I was in York!

58. 8) Rubbish being printed in amongst the text of the tutorial which at times made it uncomprehensible. I was told this was due to noise on the telephone line.

59. 3) I found the greater benefit derived from the computorials (apart from when actually speaking to a tutor) was back at home, going over them again, along with the units, CMAs, etc.
8) 90% of time, took 5 mins. to log in - then the trouble really started - that is - when trying to leave the computer before the natural end of a programme. At one stage, whilst attempting to hand over terminal to a waiting student - only achieved by switching off at plug - i.e. the terminals are reluctant to let you on, and finally determined not to let you off again. Also, returning to programme after speaking to tutor - had actually to log in, again.

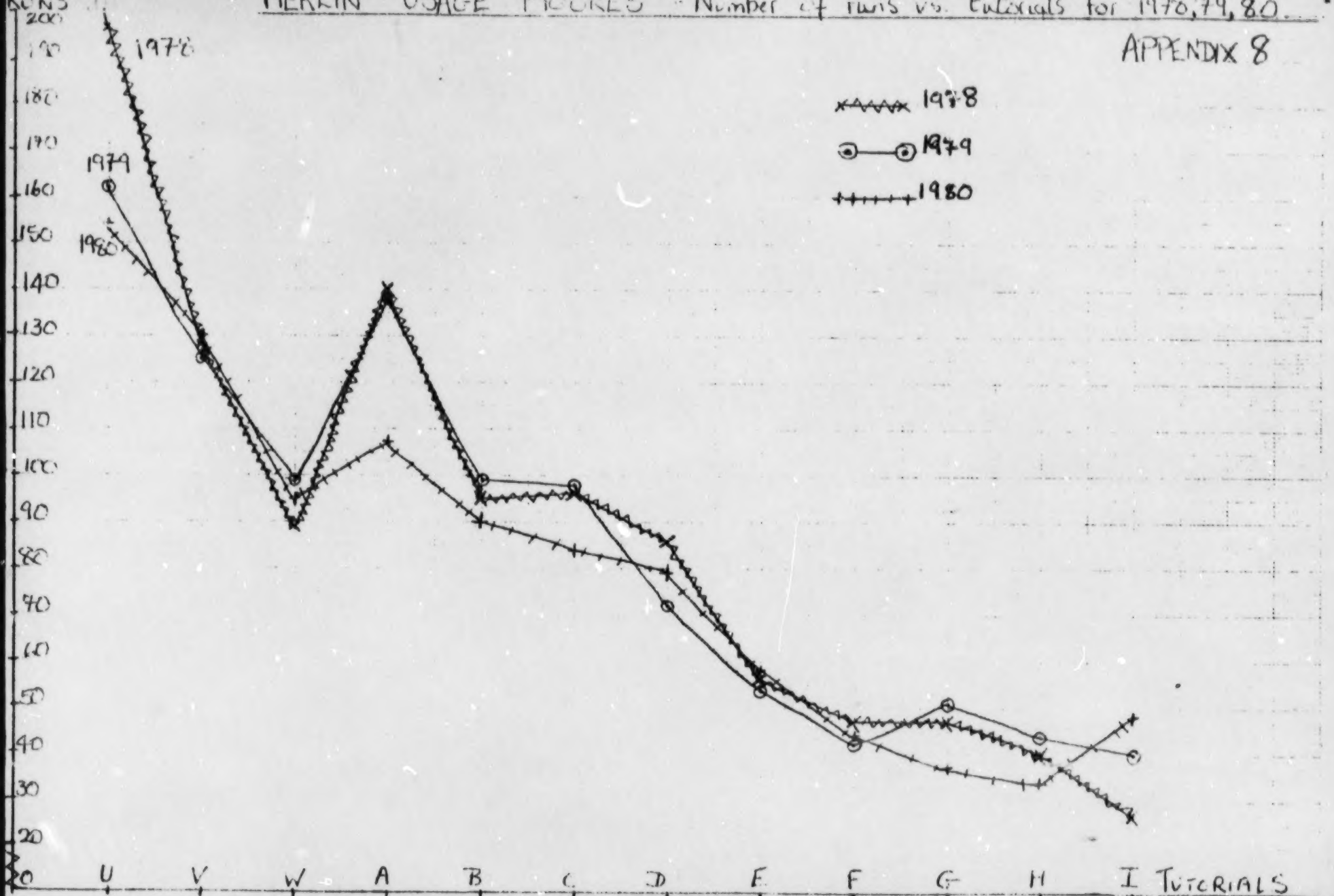
60. 8) New computer terminal installed.

61. 3) Find due to also taking M201 and restrictions on terminal time due to new SCS computer booking system plus my own shiftworking and general work/family commitments I am unable so far to find time for Merlin.
8) The 'yes' on question 7) means I always have difficulty when trying to link to computer with decsystem 20 for M201 and therefore anticipate same with Merlin. I cannot afford to waste time this way if I am to succeed with both this year's courses. Having reported my problems to SCS I have been informed I can use alternate terminals to my usual G196, so if I get a more settled period in my studies I shall try out Merlin.

62. 8) On tutorials E and F the characters 'G' and 'N' would not print out.

MERLIN USAGE FIGURES - Number of runs vs. tutorials for 1978, 79, 80.

APPENDIX 8



MERLIN USAGE FIGURES – Percentage of runs with conversations per tutorial for 1978-80.

APPENDIX 9